



# The determinants of charitable giving in Belgium

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# Motivations for research

- Around 300 million euros a year in Belgium (only monetary donations)
  - Funding source for many organisations of the third-sector
  - In times of crisis
  - Very few studies for Belgium
- ➔ What are the determinants of charitable giving in Belgium?

# Outline

- Literature Review
- Database
- Model
- Results
- Implications and conclusion

# Literature review (1/2)

- **In Belgium:**
  - No systematic research on charitable giving, some studies in Flanders
  - Income, schooling, age – Not gender and dependent children
- **Theoretical arguments:**
  - Maximization of the utility
  - Theory of Planned Behaviour
  - Psychological effects

# Literature review (2/2)

- **Empirical arguments:**
  - Likelihood to donate / Level of donation
  - Most used explanatory variables: income, marital status, gender, age, education level, tax schedule
  - Mixed results except: income, education, age
- **Econometric arguments:**
  - Tobit model
  - More complex model: two-steps Heckman, double Hurdle

# Database

- **From 2005 to 2010**
- **Fiscal data on donations and revenues**
  - For every Belgian (> 18 years old), Individual OR joint
  - To institutions with agreement, donations > 30€ (2010)
  - Aggregated at the *municipality-level* (587): gender, declaration type, age
- **Demographic data**
  - Population size, density, average revenue declared, Regions
- **Political data**
  - Political party of municipality' mayors (2006)



# Model

- $Y_1$  = Proportion of declarations with donation
- $Y_2$  = Average amount of donation
- OLS and fixed effects (heterogeneity bias)

$Y_{di} = \alpha + \beta_1 \text{ Gender}_i + \beta_2 \text{ Declaration type}_i + \beta_3 \text{ Age 40-49}_i + \beta_4 \text{ Age 50-59}_i + \beta_5 \text{ Age Older than 59}_i + \beta_6 \text{ Average revenue by declaration}_i + \beta_7 \text{ Municipality size}_i + \beta_8 \text{ Population density}_i + \varepsilon$

- Additional variables: region, political party, years

# Descriptive statistics (1/7)

- By region (type of declaration, age, gender)
- By year (evolution between 2005 and 2010)
- Map analysis
- Correlation analysis



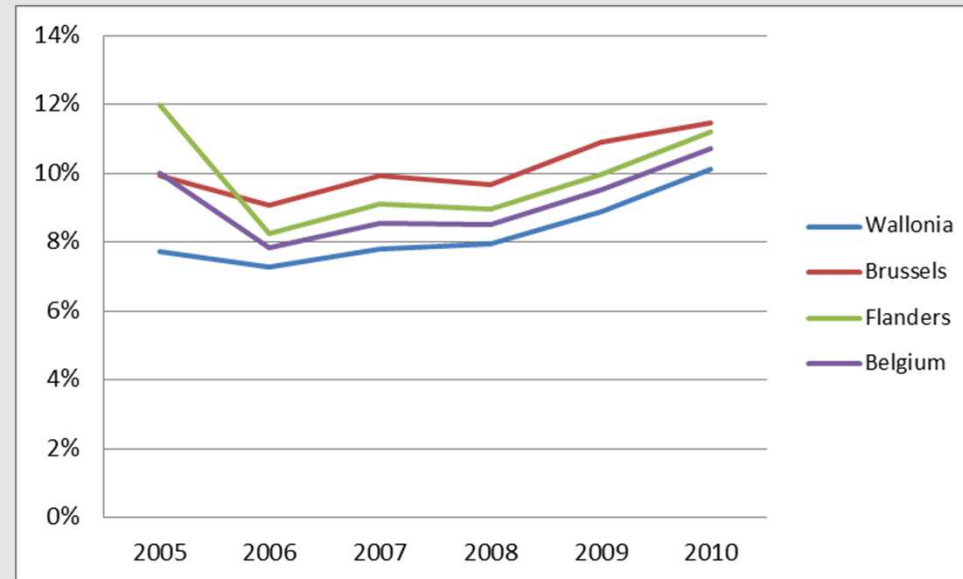
# Descriptive statistics (2/7)

Proportion of declarations with donation	Wallonia	Brussels	Flanders	Belgium
N (CSXTime)	262X6= 1522	19X6=114	306X6=1836	587X6=3522
Min	2,83%	3,64%	3,79%	2,83%
Max	19,67%	21,22%	23,28%	23,28%
Mean	8,29%	10,16%	9,91%	9,19%
Standard Deviation	0,03	0,04	0,03	0,03

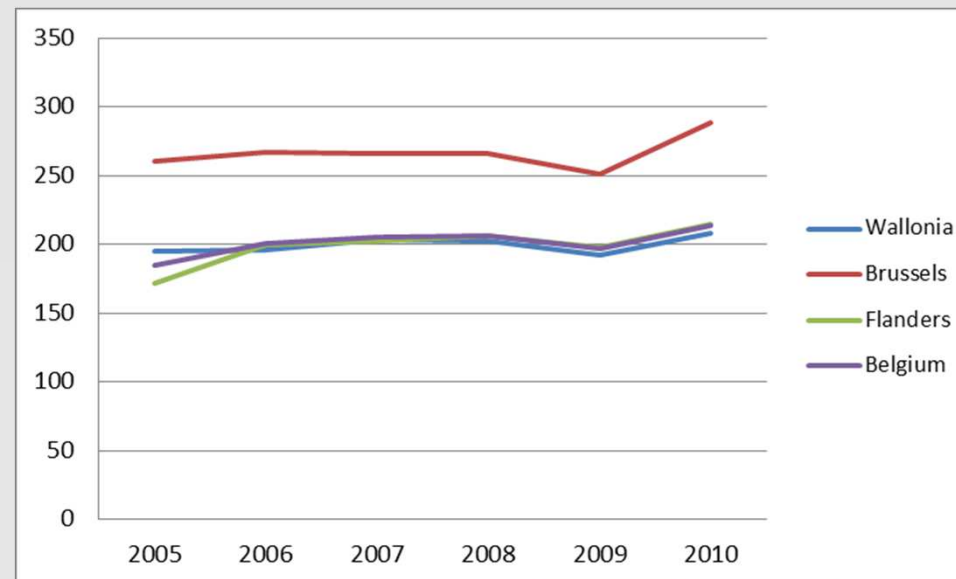
Average donation by declaration	Wallonia	Brussels	Flanders	Belgium
N (CSXTime)	262X6= 1522	19X6=114	306X6=1836	587X6=3522
Min	96,72	169,14	105,03	96,72
Max	1.508,15	512,64	894,18	1.508,15
Mean	201,37	266,40	198,69	201,37
Standard Deviation	70,14	83,99	52,17	70,14

# Descriptive statistics (3/7)

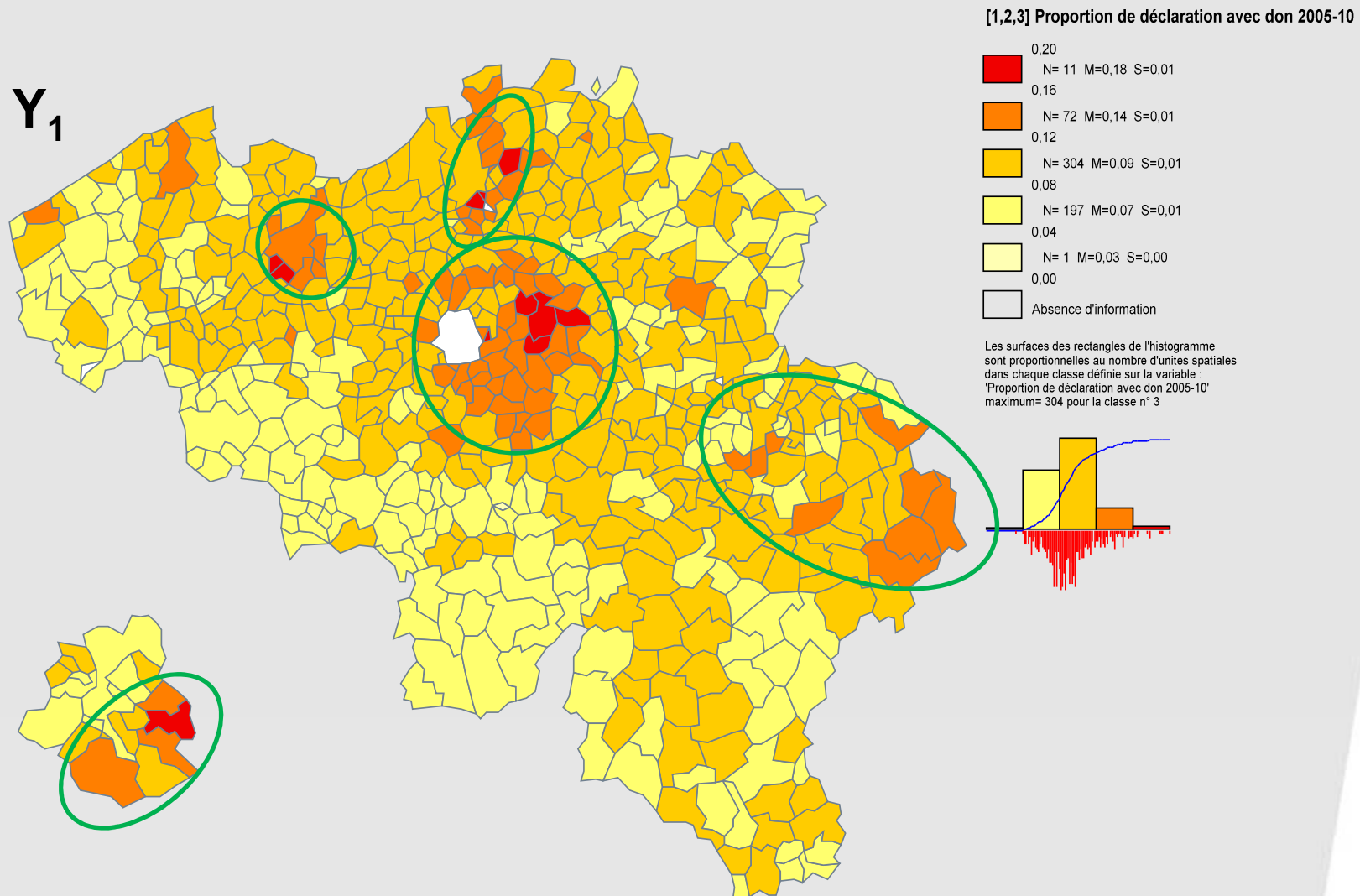
$Y_1$   
Proportion of  
declarations  
with donations



$Y_2$   
Average  
donation amount

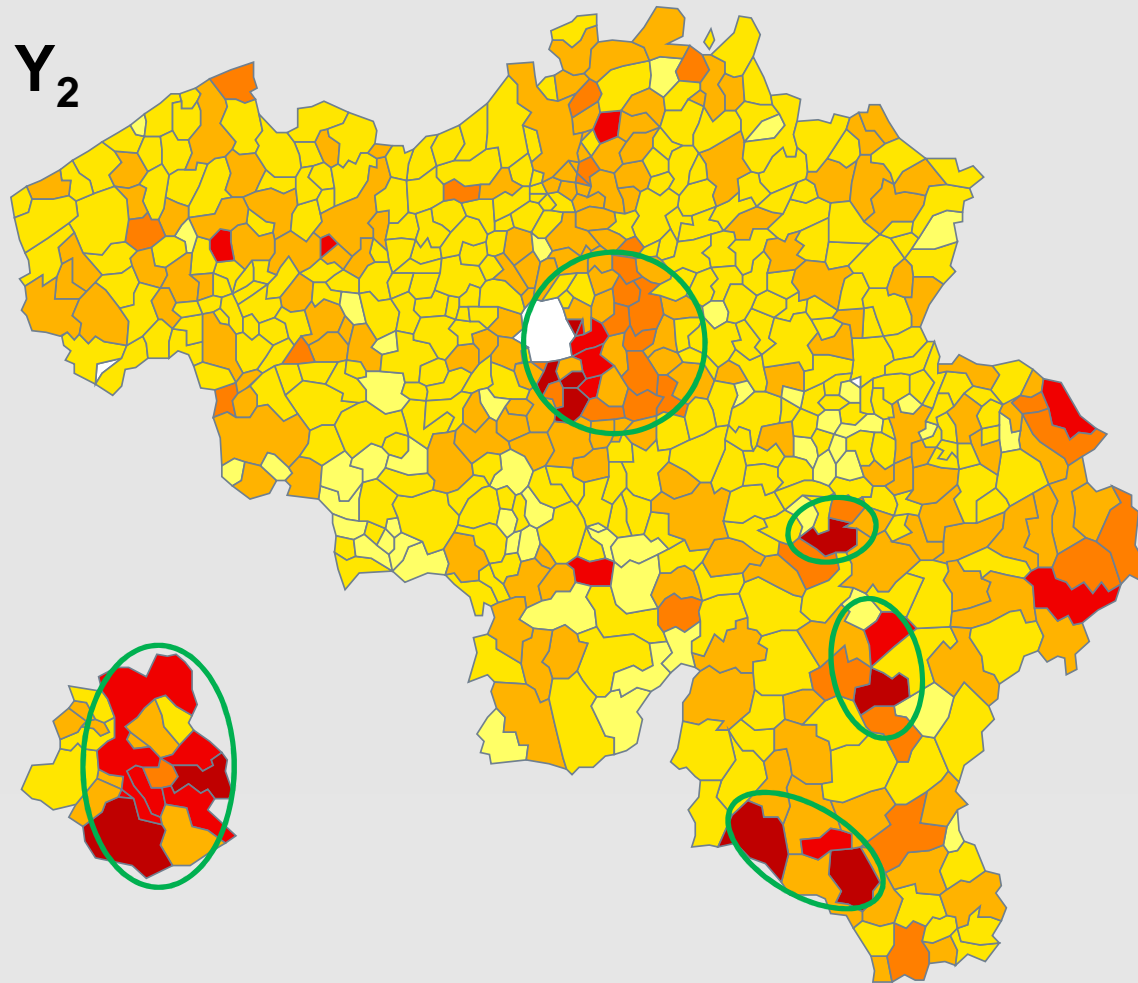


# Descriptive statistics (5/7)

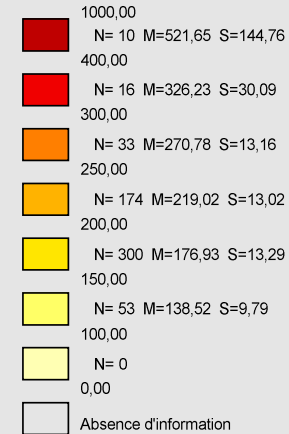


# Descriptive statistics (6/7)

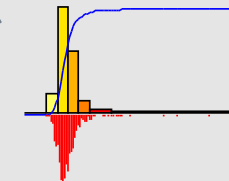
$Y_2$



[1,2,3] Don moyen par déclaration avec don 2005-10



Les surfaces des rectangles de l'histogramme sont proportionnelles au nombre d'unités spatiales dans chaque classe définie sur la variable :  
 'Don moyen par déclaration avec don 2005-10'  
 maximum= 300 pour la classe n° 3



# Descriptive statistics (7/7)

	Female	Joint declaration	Younger than 40	40-49 years old	50-59 years old	Older than 59	Brussels	Flanders	Wallonia	Population density	Green party	Left-wing party	Center party	Right-wing party	Average declared revenue	Municipality size
Female	1.00															
Joint declaration	-0.53	1.00														
Younger than 40	-0.18	-0.23	1.00													
40-49 years old	-0.33	0.37	0.05	1.00												
50-59 years old	0.06	-0.01	-0.41	0.11	1.00											
Older than 59	0.28	0.09	-0.85	-0.46	0.01	1.00										
Brussels	0.21	-0.45	0.30	-0.18	-0.30	-0.12	1.00									
Flanders	-0.32	0.65	-0.27	0.12	-0.14	0.26	-0.19	1.00								
Wallonia	0.24	-0.50	0.16	-0.06	0.25	-0.22	-0.16	-0.94	1.00							
Population density	0.15	-0.44	0.38	-0.17	-0.34	-0.19	0.83	-0.10	-0.19	1.00						
Green party	0.06	-0.09	0.06	0.01	0.01	-0.06	-0.02	-0.07	0.08	0.01	1.00					
Left-wing party	0.20	-0.37	0.08	-0.07	0.05	-0.07	0.05	-0.31	0.30	0.11	-0.07	1.00				
Center party	-0.22	0.34	-0.03	0.08	-0.09	0.03	-0.09	0.31	-0.28	-0.09	-0.10	-0.47	1.00			
Right-wing party	0.04	-0.04	-0.02	-0.01	0.08	0.00	0.07	-0.06	0.03	0.01	-0.05	-0.36	-0.48	1.00		
Average declared revenue	0.00	0.25	-0.18	0.19	0.25	0.02	-0.11	0.29	-0.25	-0.14	0.07	-0.25	0.05	0.15	1.00	
Municipality size	0.12	-0.31	0.15	-0.22	-0.18	0.00	0.24	0.07	-0.16	0.29	-0.01	0.14	-0.02	-0.07	-0.10	1.00

## Correlation analysis

	OLS 1	OLS 2	OLS 3	OLS 4	OLS 5	FE 1
Intercept	-0.1643 *** (0.021)	-0.0931 *** (0.0167)	-0.0781 *** (0.0175)	-0.0728 *** (0.0173)	0.0994 *** (0.0147)	0.0995 *** (0.0204)
Female	0.2451 *** (0.031)	0.0428 * (0.0229)	0.0418 * (0.0229)	0.0481 ** (0.0226)	-0.2116 *** (0.0198)	-0.1065 *** (0.0308)
Joint declaration	0.1024 *** (0.012)	0.0150 (0.0100)	0.0026 (0.0124)	-0.0037 (0.0125)	-0.1198 *** (0.0105)	0.4596 *** (0.0258)
40-49 years old	0.1326 ** (0.055)	0.0089 (0.0406)	-0.0022 (0.0404)	0.0164 (0.0401)	-0.1001 *** (0.0327)	-0.2783 *** (0.0371)
50-59 years old	0.3004 *** (0.047)	-0.0088 (0.0383)	0.0207 (0.0384)	0.0417 (0.0382)	-0.0399 (0.0309)	-0.4874 *** (0.0427)
Older than 59	0.0314 (0.020)	0.0734 *** (0.0151)	0.0539 *** (0.0159)	0.0503 *** (0.0157)	0.1551 *** (0.0130)	-0.2251 *** (0.0208)
Population density		1.780-06 *** (2.356E-7)	0.0000 (3.72E-7)	0.0000 (3.693E-7)	0.0000 * (2.977E-7)	0.0000 (2.194E-6)
Average declared income (in 000s)		0.0052 *** 9.530E-5)	0.0051 *** (9.829E-5)	0.0049 *** (9.943E-5)	0.0071 *** (1.054E-4)	0.0012 *** (3.081E-4)
Municipality size (in 000s)		0.0001 *** 1.380E-5)	0.0001 *** (1.466E-5)	0.0001 *** (1.456E-5)	0.0001 *** (1.173E-5)	-0.0008 *** (2.49E-4)
Wallonia			-0.0034 ** (0.0011)	-0.0033 *** (0.0011)	-0.0012 (0.0009)	
Brussels			0.0197 *** (0.0038)	0.0161 *** (0.0038)	0.0102 *** (0.0030)	
Left-wing party				-0.0106 *** (0.0015)	-0.0071 *** (0.0012)	
Center-party				-0.0065 *** (0.0013)	-0.0037 *** (0.0011)	
Right-wing party				-0.0017 (0.0013)	-0.0022 ** (0.0011)	
Year 2006					-0.0270 *** (0.0010)	-0.0189 *** (0.0005)
Year 2007					-0.0335 *** (0.0010)	-0.0114 *** (0.0009)
Year 2008					-0.0454 *** (0.0011)	-0.0110 *** (0.0014)
Year 2009					-0.0438 *** (0.0011)	-0.0003 (0.0018)
Year 2010					-0.0397 *** (0.0012)	0.0129 *** (0.0022)
R <sup>2</sup>						0.9506
Adjusted R <sup>2</sup>	0.0497	0.5026	0.5070	0.5189	0.6886	
F-test	37.86 ***	443.73 ***	363.05 ***	293.17 ***	433.47 ***	26.89 ***
Hausman Test						629.84 ***

	OLS 1	OLS 2	OLS 3	OLS 4	OLS 5	FE 1
Intercept	266.828 *** (49.233)	357.339 *** (50.831)	296.152 *** (52.903)	303.326 *** (52.671)	478.665 *** (54.213)	-58.629 (98.596)
Female	19.262 (72.405)	-217.521 *** (69.513)	-257.366 *** (69.040)	-235.080 *** (68.672)	-559.352 *** (73.055)	238.226 (148.700)
Joint declaration	-110.764 *** (28.609)	-214.900 *** (30.318)	-100.288 *** (37.508)	-139.913 *** (37.913)	-255.937 *** (38.772)	-219.159 * (124.700)
40-49 years old	-523.292 *** (129.080)	-682.788 *** (123.076)	-696.427 *** (121.969)	-632.103 *** (121.570)	-884.739 *** (120.606)	-70.886 (179.300)
50-59 years old	307.013 *** (109.471)	-38.453 (116.255)	-0.807 (116.046)	68.211 (116.078)	71.562 (113.797)	425.780 ** (206.200)
Older than 59	92.652 * (48.001)	149.251 *** (45.996)	185.145 *** (48.126)	184.611 *** (47.881)	308.977 *** (48.142)	148.514 (135.500)
Population density		0.003 *** (0.001)	-0.002 ** (0.001)	-0.002 (0.001)	-0.001 (0.001)	0.010 (0.011)
Average declared income (in 000s)		5.797 *** (0.289)	5.929 *** (0.296)	5.535 *** (0.301)	8.447 *** (0.388)	0.004 ** (0.001)
Municipality size (in 000s)		-0.009 (0.042)	0.064 (0.044)	0.090 ** (0.044)	0.067 (0.043)	0.000 (0.001)
Wallonia			12.697 *** (3.543)	14.402 *** (3.539)	18.577 *** (3.474)	
Brussels			95.616 *** (11.517)	87.659 *** (11.553)	82.524 *** (11.303)	
Left-wing party				-25.356 *** (4.558)	-20.688 *** (4.472)	
Center-party				-5.997 (4.132)	-2.721 (4.049)	
Right-wing party				-6.443 (4.195)	-7.457 * (4.100)	
Year 2006					7.828 ** (3.689)	11.804 *** (2.567)
Year 2007					-5.078 (3.853)	8.826 * (4.824)
Year 2008					-19.904 *** (4.124)	3.338 (7.157)
Year 2009					-41.353 *** (4.370)	-11.678 (8.919)
Year 2010					-35.843 *** (4.657)	-0.156 (10.658)
R <sup>2</sup>						0.782
Adjusted R <sup>2</sup>	0.026	0.133	0.150	0.162	0.200	
F-test	20.01 ***	68.46 ***	63.26 ***	53.32 ***	49.81 ***	
Hausman test						35.42 ***

\* = significant at 10%-level \*\* = significant at 5%-level \*\*\* = significant at 1%-level

# Discussion

	Y1- OLS	Y1- FE	Y2- OLS	Y2- FE
Female	Mixed	-	-	+
Joint declaration	Mixed	+	-	-
Age	+ (Elderly)	- (Elderly)	+ (Elderly)	Not significant
Population density	+	Not significant	Mixed	Not Significant
Average declared income (in 000s)	+	+	+	+
Municipality size (in 000s)	+	-	Not significant	Not significant
Wallonia	-	N.a.	+	N.a.
Brussels	+	N.a.	+	N.a.
Left-wing party	-	N.a.	-	N.a.
Center-party	-	N.a.	Not significant	N.a.
Right-wing party	-	N.a.	-	N.a.
Years	U-Shaped	U-Shaped	U- Shaped	U-Shaped

- Gender, Marital status, Age, Income, Region, Political party
- Economic crisis



# Conclusion – Future research

- Data at individual level → Two-step Heckman
- Longitudinal survey → motivations, non-deductible donations, volunteering
- Deductible amount = 40 € in 2011 → addressing endogeneity problem

# Thanks for your attention

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